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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/049,879      | 05/30/2002  | Jorunn Nilsen        | 09100.024           | 6277             |

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NIXON & VANDERHYE, PC  
901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

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| EXAMINER |
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WOLLSCHLAGER, JEFFREY MICHAEL

|          |              |
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| ART UNIT | PAPER NUMBER |
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1732

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|-------------------|--|---------------|--|
| <b>Office Action Summary</b> | Application No.   |  | Applicant(s)  |  |
|                              | 10/049,879        |  | NILSEN ET AL. |  |
|                              | Examiner          |  | Art Unit      |  |
|                              | Jeff Wollschlager |  | 1732          |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

Claims 1-10 are pending.

### ***Information Disclosure Statement***

The information disclosure statement filed October 12, 2004 fails to comply with 37 CFR 1.97(c) because it lacks a statement as specified in 37 CFR 1.97(e). It has been placed in the application file, but the information referred to therein has not been considered. The IDS is not signed.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 9, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims include the recitation "a density of to 960 kg/m<sup>3</sup>". The claimed density range of the HDPE is unclear. For the purposes of examination, the amendment to the claims is interpreted in view of the original reason for the amendment (i.e. "solely for the purpose of eliminate multiple dependencies"), and as such the recitation is understood to be "a density of 945 to 960 kg/m<sup>3</sup>". Applicant is encouraged to amend the claims accordingly to clarify the record.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Nowlin et al. (U.S. Patent 5,539,076; issued July 23, 1996).

Regarding claim 1, Nowlin et al. teach a blow molding process to form a bottle, container, fuel tank or drum, wherein the resin utilized is a bimodal HDPE comprising an ethylene homopolymer and an ethylene copolymer (col. 2, lines 54-56).

As to claim 2, Nowlin et al. teach the lower molecular weight component has a molecular weight of from 0.1 to 20,000 (col. 3, lines 42-46).

As to claims 3 and 8, Nowlin et al. teach the density of the HDPE is 0.89 to 0.97 g/cc (col. 2, lines 60-61).

Claims 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Harlin et al. (U.S. Patent 5,494,965; issued February 27, 1996).

Regarding claim 1, Harlin et al. teach a blow molding process for producing a blow molded product wherein the resin utilized is a bimodal HDPE comprising an

ethylene homopolymer and an ethylene copolymer (Abstract; col. 4, lines 28-47; col. 5, lines 3-28).

As to claim 2, Harlin et al. teach the lower molecular weight ethylene homopolymer component has a molecular weight of from 15,000 – 30,000 (Abstract; claim 14; col. 7, lines 8-30).

As to claims 3 and 8, Harlin et al. teach the density of the HDPE is between 0.94 and 0.96 g/cc (col. 4, lines 48-60).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nowlin et al. (U.S. Patent 5,539,076; issued July 23, 1996), as applied above for claims 1-3 and 8.

Regarding claims 4-7, 9 and 10, Nowlin et al. disclose blow molding to form a bottle, container, fuel tank or drum, wherein the resin utilized is a bimodal HDPE comprised of homopolymers and copolymers of ethylene (column 2, lines 54-56). Nowlin et al. further teach the claimed molecular weights, density, molecular weight distribution and MFR as claimed in claim 4 (column 15, lines 15-20 and the Tables in

columns 12) and further teach the resin is mainly comprised of ethylene (col. 2, lines 54-56). Nowlin et al. do not specifically teach the tensile modulus and comonomer content as claimed.

However, because Nowlin et al. do teach the remainder of the physical properties of the resin, it would have been obvious to a person having ordinary skill in the art at the time of the invention to optimize the tensile modulus and comonomer content, as is routinely practiced in the art.

Regarding claim 6, Nowlin et al. do not specifically teach that the container has a volume of at least 8L. Nowlin et al. do teach that the products formed may be fuel tanks or drums. It is generally well known in the art to form a drum with a volume of at least 8L. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the method taught by Nowlin et al. to form a generally well known size of drum, such as at least 8L, in order to make the desired finished product.

Claims 4-7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harlin et al. (U.S. Patent 5,494,965 issued February 27, 1996), as applied above for claims 1-3 and 8.

Regarding claims 4-7, 9 and 10, Harlin et al. disclose blow molding to form blow molded products (col. 1, lines 7-12), wherein the resin utilized is a bimodal HDPE comprised of homopolymers and copolymers of ethylene (Abstract; col. 4, lines 28-47; col. 5, lines 3-28).

Harlin et al. further teach the claimed molecular weights, density, molecular weight distribution and MFR ranges as claimed in claim 4 (col. 3, lines 51-col. 4, line 60;

Table I). Harlin et al. do not specifically teach the tensile modulus and comonomer content as claimed.

However, because Harlin et al. teach the remainder of the physical properties of the resin, it would have been obvious to a person having ordinary skill in the art at the time of the invention to optimize the tensile modulus and comonomer content, as is routinely practiced in the art. Further, since the resin employed by Harlin and the resin instantly employed in the claims are indistinct, the ESCR  $F_{50}$  would intrinsically be the same.

Regarding claim 6, Harlin et al. do not specifically teach that the blow molded product has a volume of at least 8L. However it is generally well known to produce a blow molded product to a desired size, such as an HDPE drum having a volume of at least 8L. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the method taught by Harlin et al. to form a generally well known sized container in order to make the desired finished product.

### ***Response to Arguments***

Applicant's arguments filed February 4, 2005 have been fully considered but they are not persuasive.

Applicant's arguments appear to be on the following grounds:

1. The Nowlin et al. reference (U.S. 5,539,076) does not enable admixtures of homopolymers and copolymers to be formed using its process.

Applicant's arguments are not persuasive for the following reasons:

1. The examiner notes that Nowlin et al. disclose three methods/processes for providing mixtures of ethylene homopolymers and ethylene copolymers. These methods are 1) physical blending (col. 1, lines 29-35); 2) a tandem reactor arrangement (col. 1, lines 36-55); and 3) a single reactor arrangement (col. 2, lines 8-67). The single reactor arrangement is Nowlin et al.'s supposed improvement over the prior art. To begin with, it is noted that Nowlin et al. disclose two prior art methods of making a bimodal HDPE containing an ethylene homopolymer and an ethylene copolymer.

The examiner acknowledges that the Nowlin et al. disclosure is not as clear as desired regarding how the single reactor arrangement simultaneously produces a homopolymer and copolymer component as is clearly suggested in the Nowlin et al. reference. However, upon a careful review of the claims found in the Nowlin et al. patent, such a process is not required. Nowlin et al. claim the pertinent bimodal HDPE and an article blow molded with the bimodal HDPE. Further, the formation and utilization of the pertinent bimodal HDPE is enabled by the reference even if the single reactor arrangement process is not enabled (although the examiner is not suggesting the single reactor arrangement is not enabled).

The process is enabled as specified in 1) and 2) above by Nowlin et al. citing prior art, and is enabled as specified in 3) above, at least by, sequentially producing an ethylene homopolymer followed by producing an ethylene copolymer in the single reactor arrangement followed by mixing/blending them together. This interpretation is supported by the Nowlin et al. reference and would have been understood by one having ordinary skill in the art at the time of the claimed invention. The examiner further

notes that physical blending and tandem reactor arrangements are disclosed in the instant application as well.

Further, there is external support and evidence that the process taught by Nowlin et al., although not as clearly disclosed as desired, is enabled for producing the pertinent bimodal HDPE in a single reactor arrangement (U.S. 6,552,150; col. 8, lines 12-17).

The examiner further notes that applicant's statement that the resins taught by Nowlin et al. are crosslinkable whereas the current resins are not crosslinkable does not appear to be supported by the instant specification (WO 01/14122; page 7).

#### ***Allowable Subject Matter***

The following indication of allowable subject matter regarding the pending application is provided in an effort to advance prosecution on this dated case. The proposed claim limitations are supported by the instant specification and distinguish the claims over the prior art of record cited in this office action (found in the rejections above and the references cited below).

The prior art cited in this office action individually or when combined fails to teach or fairly suggest:

(1) A blow molding process for the preparation of a HDPE container comprising: blow molding a bimodal HDPE to produce a container having a volume of at least 8 liters and an ESCR  $F_{50}$  of at least 500 hours; wherein said bimodal HDPE consists of an ethylene homopolymer and an ethylene copolymer; wherein said ethylene homopolymer

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has a weight average molecular weight of 40,000 to 100,000 D; and wherein said bimodal HDPE has a density of  $960 - 975 \text{ kg/m}^3$ , a comonomer content of 1 % to 2 % by weight, a  $\text{MFR}_{21}$  of 2 – 3.3, a weight average molecular weight of 250,000 to 350,000 D, a number average molecular weight of 7000 to 18,000 D, a molecular weight distribution of 18 to 50, and a tensile modulus of at least 900 mPa.

(6) A blow molded bimodal HDPE container having a volume of at least 8 liters and an ESCR  $F_{50}$  of at least 500 hours; wherein said bimodal HDPE consists of an ethylene homopolymer and an ethylene copolymer; wherein said ethylene homopolymer has a weight average molecular weight of 40,000 to 100,000 D; and wherein said bimodal HDPE has a density of  $960 - 975 \text{ kg/m}^3$ , a comonomer content of 1 % to 2 % by weight, a  $\text{MFR}_{21}$  of 2 – 3.3, a weight average molecular weight of 250,000 to 350,000 D, a number average molecular weight of 7000 to 18,000 D, a molecular weight distribution of 18 to 50, and a tensile modulus of at least 900 mPa.

It is the examiner's position that all of the limitations recited above, together, are required to distinguish the instantly claimed invention over what the prior art of record in this office action expressly teaches and to distinguish the instantly claimed invention over intrinsic and implied bimodal HDPE physical properties and bimodal HDPE physical property relationships. Additionally, the examiner has attempted to anticipate potential claim amendments within the context of the subject matter supported by the specification and the supposed rejections of those amendments to arrive at the

proposed allowable subject matter. Again, this was done to advance prosecution on this dated case.

The examiner encourages Applicant to cancel currently pending claims 2-5 and 7-10 and amend claims 1 and 6 as proposed above or to refute the examiner's current position by providing clear and convincing evidence as to how the instant (or alternatively amended) claims distinguish over the prior art cited in this office action.

### ***Conclusion***

All claims are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. 6,221,982 to Debras et al. teaches a process of producing HDPE containing an ethylene homopolymer and an ethylene copolymer within the claimed density, MFR, and molecular weight range (col. 2, lines 48-51; col. 2, lines 54-col. 3, lines 12; col. 3, lines 65-67; col. 4, lines 46-64) instantly claimed. The HDPE produced by the method has improved mechanical properties desirable for blow molding.

U.S. 6,090,893 to Harlin et al. teaches and incorporates by reference similar HDPE, processes, and products.

U.S. 6,485,662 to Neubauer et al. provides additional analogous and pertinent information.

U.S. 6,126,033 to Suttoni exemplifies a blow molded HDPE drum.

U.S. 4,391,128 to McWhorter exemplifies a blow molded 55-gallon HDPE drum.

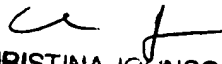
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW  
Jeff Wollschlager  
Examiner  
Art Unit 1732

August 23, 2006

  
CHRISTINA JOHNSON  
PRIMARY EXAMINER  
8/29/06